

**Abstract**

A wireless communication system base station includes a number of channel unit boards, each including multiple channel elements for providing processing operations for signals assigned to multiple carriers of the system. A given channel unit board includes a multiplexer which is operative to implement multi-carrier/multi-sector channel pooling by assigning a given one of the channel elements of that board to any one of the multiple carriers of the system. For example, the multiplexer in the given channel board may be operative to connect the channel elements of that board to I/Q signal buses associated with different system carriers. The I/Q signal bus for each of the carriers is then combined on the given board with corresponding signals from other boards. The invention allows each of N channel elements of the given channel unit board to be assigned to a particular one of up to N carriers of the system, thereby providing substantially improved flexibility in terms of system configuration.